CLAIMS

What is claimed is:

1.   A method of simulating operation of a wireless communication network, the method

5   comprising:

defining a radio base station in a simulation environment;

defining two or more categories of subscribers;

defining a plurality of candidate subscriber units associated with said radio base station

in said simulation environment, each said candidate subscriber unit associated

10   with one of said subscriber categories;

determining a total forward link power available to said base station for transmitting

signals to said candidate subscriber units;

performing a call admission procedure to randomly admit candidate subscriber units for

service from said base station, said call admission procedure comprising, for

15   each candidate subscriber unit:

determining the unallocated total forward link power;

determining the additional power requested by the candidate subscriber unit;

determining the available power for a corresponding subscriber category; and

admitting said candidate subscriber unit if the additional power requested by the

20   candidate subscriber unit is within the limits of the unallocated total forward link

power and the available power for the corresponding subscriber category.

2.   The method of claim 1 further comprising recomputing the available power for the

corresponding subscriber category and the unallocated total forward link power when a

25   subscriber unit is admitted.

3.   The method of claim 1 wherein determining the available power for a corresponding

subscriber category comprises:

determining a power threshold for the subscriber category;

determining the total power previously allocated to other subscriber units in the

5   corresponding category;

determining the available power by subtracting the previously allocated power to all

subscribers in the corresponding category from the power threshold.

4.   The method of claim 3 wherein determining a power threshold for the subscriber

10   category comprises:

determining a power reserve for each subscriber category;

determining the power threshold for a given subscriber category by subtracting the

power reserve for the remaining subscribe categories form the total forward link

power.

15   5.   The method of claim 3 wherein determining the unallocated total forward link power

comprises; ·

determining the total power previously allocated to all subscriber units; and

determining the unallocated total forward link power by subtracting the power previously

20   allocated to all subscriber units from the total forward link power.

6.   The method of claim 1 wherein said subscriber categories include voice users and data

users.

7.   The method of claim 1 wherein the power threshold for said voice users prior to beginning said call admissions procedure is equal to the total forward link power.

8.   The method of claim 7 wherein the power threshold for said voice users prior to

5   beginning said call admissions procedure less than the total forward link power.

9.   The method of claim 7 wherein the power threshold for said data users prior to beginning said call admissions procedure is equal to the total forward link power.

10.   The method of claim 7 wherein the power threshold for said data users prior to beginning said call admissions procedure less than the total forward link power.

11.   The method of claim 1 wherein determining the additional power requested by the candidate subscriber unit comprises determining the additional power required by the subscriber

15   unit at a desired data rate.

12.   The method of claim 11 wherein determining the additional power requested by the candidate subscriber unit further comprises recomputing the requested power at a fallback data rate if the additional power required at the desired data rate exceeds the available power for the

20   corresponding subscriber category

13.   A method of simulating call admission in a wireless communications network, said method comprising:

        defining a plurality of candidate subscriber units, each said candidate subscriber unit

25   associated with one of a plurality of subscriber categories;

determining a total forward link power available for transmitting signals to said candidate

subscriber units;

determining the additional power requested by the candidate subscriber unit; and

admitting successive ones of said candidate subscriber units in a determined order if, for

5   each candidate subscriber unit, the additional power requested by the candidate

subscriber unit is within the limits of an unallocated total forward link power and

an available power for a corresponding subscriber category.

14.   The method of claim 13 further comprising recomputing the available power for the

corresponding subscriber category and the unallocated total forward link power when a

subscriber unit is admitted.

15.   The method of claim 13 wherein determining the available power for a corresponding

subscriber category comprises:

determining a power threshold for the subscriber category;

determining the total power previously allocated to other subscriber units in the

corresponding category; and

determining the available power by subtracting the previously allocated power to all

subscribers in the corresponding category from the power threshold.

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16.   The method of claim 14 wherein determining a power threshold for the subscriber

category comprises:

determining a power reserve for each subscriber category; and

determining the power threshold for a given subscriber category by subtracting the

power reserve for the remaining subscribe categories form the total forward link

power.

5   17.   The method of claim 15 wherein determining the unallocated total forward link power

comprises;

determining the total power previously allocated to all subscriber units; and

determining the unallocated total forward link power by subtracting the power previously

allocated to all subscriber units from the total forward link power.

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18.   The method of claim 13 wherein said subscriber categories include voice users and data

users.

19.   The method of claim 18 wherein the power threshold for said voice users prior to

15   beginning said call admissions procedure is equal to the total forward link power.

20.   The method of claim 18 wherein the power threshold for said voice users prior to

beginning said call admissions procedure less than the total forward link power.

20   21.   The method of claim 18 wherein the power threshold for said data users prior to

beginning said call admissions procedure is equal to the total forward link power.

22.   The method of claim 18 wherein the power threshold for said data users prior to

beginning said call admissions procedure less than the total forward link power.

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23.   The method of claim 13 wherein determining the additional power requested by the candidate subscriber unit comprises determining the additional power required by the subscriber unit at a desired data rate.

5   24.   The method of claim 23 wherein determining the additional power requested by the candidate subscriber unit comprises recomputing the additional power at a fallback data rate if the additional power required at the desired data rate exceeds the available power for the corresponding subscriber category

10   25.   A method of simulating call admission in a wireless communications network having a mix of subscriber units including both voice users and data users, said method comprising:

    determining a total forward link power available for serving said candidate
        subscriber units;

    defining an power reserve for serving voice users;

    defining an available power for serving data users based on said power reserve for
        voice users;

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    admitting successive ones of said candidate subscriber units in a determined order if, for
        each candidate subscriber unit, the additional power required by said subscriber
        unit is within the limits of an unallocated total forward link power; and

20   excluding a data user when the additional power required by said data user exceeds the
        available power for data users.

26.   The method of claim 25 further comprising recomputing the unallocated total forward link power when a subscriber unit is admitted.

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27.   The method of claim 25 further comprising recomputing the available power for data

users when a data user is admitted.

28.   The method of claim 25 further comprising:

5   defining an power reserve for serving data users;

            defining an available power for serving voice users based on said power reserve for

                data users; and

            excluding a voice user when the additional power required by said voice user exceeds

                the available power for voice users.

29.   The method of claim 28 further comprising recomputing the available power for voice

users when a voice user is admitted.

30.   A method of simulating call admission in a wireless communications network having a

mix of subscriber units including both voice users and data users, said method comprising:

            determining a total forward link power available for serving said candidate

                subscriber units;

            defining an power reserve for serving data users;

            computing an available for voice users based on said power reserve for data users;

20   admitting successive ones of said candidate subscriber units in a determined order if, for

                each candidate subscriber unit, the additional power required by said subscriber

                unit is within the limits of an unallocated total forward link power; and

            excluding a voice user when the additional power required by said voice user exceeds

                the available power for voice users.

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31.   The method of claim 30 further comprising recomputing the unallocated total forward link power when a subscriber unit is admitted.

32.   The method of claim 31 further comprising recomputing the available power for voice
5   users when a voice user is admitted.

33.   A computer readable media storing a program for simulating call admission in a wireless communications network, said program comprising:

program code for defining a plurality of candidate subscriber units, each said candidate subscriber unit associated with one of a plurality of subscriber categories;

program code for determining a total forward link power available for transmitting signals to said candidate subscriber units;

program code for determining the additional power requested by the candidate subscriber unit; and

program code for admitting successive ones of said candidate subscriber units in a determined order if, for each candidate subscriber unit, the additional power requested by the candidate subscriber unit is within the limits of an unallocated total forward link power and an available power for a corresponding subscriber category.

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34.   The computer readable media of claim 33 further comprising program code for recomputing the available power for the corresponding subscriber category and the unallocated total forward link power when a subscriber unit is admitted.

35.   The computer readable media of claim 33 wherein the program code for determining the available power for a corresponding subscriber category comprises:

       program code for determining a power threshold for the subscriber category;

       program code for determining the total power previously allocated to other subscriber

5   units in the corresponding category; and

       program code for determining the available power by subtracting the previously allocated

              power to all subscribers in the corresponding category from the power threshold.

36.   The computer readable media of claim 34 wherein the program code for determining a

10 power threshold for the subscriber category comprises:

       program code for determining a power reserve for each subscriber category; and

       program code for determining the power threshold for a given subscriber category by

              subtracting the power reserve for the remaining subscribe categories form the

              total forward link power.

15 37.   The computer readable media of claim 35 wherein the program code for determining the unallocated total forward link power comprises;

       program code for determining the total power previously allocated to all

              subscriber units; and

20   program code for determining the unallocated total forward link power by subtracting the

              power previously allocated to all subscriber units from the total forward

              link power.

38.   The computer readable media of claim 33 wherein the program code for determining the

additional power requested by the candidate subscriber unit comprises determining the

additional power required by the subscriber unit at a desired data rate.

5   39.   The computer readable media of claim 38 wherein the program code for determining the

additional power requested by the candidate subscriber unit comprises recomputing the

additional power at a fallback data rate if the additional power required at the desired data rate

exceeds the available power for the corresponding subscriber category.